U.S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE

GUIDE

NV G 430.X3

Approved: 05-06-99
Review Date: 05-06-01
Expires: 05-06-03

DOE/NV MAINTENANCE MANAGEMENT PLANNING AND EXECUTION GUIDE

INITIATED BY:
Engineering & Asset Management Division

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INTRODUCTION

This Guide presents an overview of the DOE Nevada Operations Office (DOE/NV) Maintenance Management System for all government-owned and leased facilities at the following locations:

1. Nevada Test Site (NTS) ([1]excluding the Device Assembly Facility (DAF) and Laboratory Facilities).
2. North Las Vegas (NLV) facilities, North Las Vegas, Nevada ([2]excluding the Nevada Support Facility).
3. Remote Sensing Laboratory (RSL), Nellis Air Force Base, North Las Vegas, Nevada.
4. [3]Washington Aerial Measurements Operations Facility (WAMO), Andrews Air Force Base, Camp Springs, Maryland.
5. [4]Los Alamos Operations (LAO), Los Alamos, New Mexico.
6. [4]Livermore Operations (LO), San Ramon, California.
7. [4]Special Technical Laboratory (STL), Goleta Valley, California.

DOE/NV's current missions are programmatic, stewardship of the NTS, health and safety, human resources, and business management.

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[1]The DAF and laboratory facilities, located at the NTS, are managed and maintained by the Stockpile Stewardship Division, and is not included in this Guide.

[2]The Nevada Support Facility is managed by Federal staff and is developing a separate guide.

[3]Bechtel Nevada (BN) maintains this facility and has responsibility for heating, ventilating, and air conditioning. Andrews Air Force Base has responsibility for all electrical systems, plumbing, fire alarm systems, security systems, utilities, and general carpentry.

[4]A BN subcontractor accomplishes maintenance work for these leased facilities.

1. WHY USE THIS GUIDE.

   Maintenance management is a means to efficiently perform cost-effective activities that preserve and restore the availability, operability, safety, and reliability of DOE/NV's site assets support the facility mission and fulfill their intended life cycles and purposes. The maintenance management planning guide should be used by DOE/NV as a tool to assist maintenance personnel in the management and oversight of the maintenance program at DOE/NV.

   The use of a systematic approach to maintenance management provides a consistent structure for managing work scope. A structured maintenance management system helps ensure proposed maintenance of facilities meet the following criteria:

   a. The maintenance task will support DOE/NV missions and the strategic plan.

   b. The maintenance task is defined adequately to commit Department of Energy (DOE) resources.

   c. The maintenance task is successfully completed within defined technical objectives, on schedule, and within a planned budget.

   This Guide describes the broad concept for a structured maintenance management system to operate and maintain DOE/NV real property effectively. It describes the basic processes, products, and decision points within the maintenance program.

2. RELEVANT USE OF THIS GUIDE. This guide applies to all categories of maintenance (e.g., preventive, predictive, and corrective) to insure that facilities and infrastructure can perform their individual purposes and fulfill their expected life cycles.

3. GRADED APPROACH. For cost-effective maintenance management, DOE/NV applies a prioritized, documented, graded approach to managing its program. The maintenance program is prioritized according to risk and mission need. The prioritization process encompasses four areas of major emphasis:

a. Health and Safety. The maintenance of DOE/NV assets is commensurate with the asset's relative importance to safety, environmental protection, and worker and public health.

b. Regulatory. Expectations for DOE organizations and employees are set through regulatory requirements and DOE Directives (Policies, Orders, Manuals, Guides, etc.).

c. Programmatic. Programmatic management is planning and developing the overall program including: Establishing broad priorities; providing program technical direction; preparing and defending the program budget; controlling milestones; integrating all components of the program; providing public and private sector policy liaison; expediting interface activities and follow-up actions; and retaining overall accountability for program success.

d. Decision Points. The maintenance program has certain phases of development. A clear understanding of these phases permits control of resources that enable DOE/NV to achieve its goal. The maintenance management system consists of the following phases for a given maintenance and repair task:

(1) Identify maintenance task that needs to be accomplished.

(2) Assign priority to the task using the graded approach system.

(3) Plan and document the task to be accomplished to a level commensurate with its significance and complexity.

(4) Schedule and track the task to meet the site's needs.

(5) Perform the task in a manner that meets expectations for performance, schedule, safety, and cost.

(6) Perform any post-maintenance review or testing required, based on the significance and complexity of the task.

(7) Provide data to manage maintenance functions.

Generally, these phases will occur in sequence, however, efforts within each phase may overlap significantly, due to the complexity of maintenance projects.

DOE/NV MAINTENANCE MANAGEMENT PLANNING AND EXECUTION GUIDE

1. OBJECTIVE. Provide uniform guidance for the planning and execution of all maintenance activities at DOE/NV.

2. CANCELLATION. None.

3. APPLICABILITY. The DOE/NV personnel responsible for management and oversight of the maintenance program. Also identified are areas where other organizations interface with the DOE/NV process and provide support to DOE/NV in planning and executing maintenance activities.

4. PROCEDURES.

   a. Planned Maintenance Projects. The Engineering and Asset Management Division (EAMD) requests that the Contractor present planned maintenance projects to include justification, cost, schedule, and impacts for noncompleted projects at the beginning of the fiscal year. This plan will be the established baseline for the fiscal year that will identify backlog maintenance and repair (BMAR) and corrective maintenance projects.

      Identification of Need for Proposed Maintenance Projects.

      (1) Proposed maintenance projects are identified by the Management and Operating (M&O) Contractors and presented to EAMD.

      (2) DOE/NV EAMD and other pertinent DOE/NV divisional program points of contact will review each project for programmatic justification, scope, and cost.

      (3) Projects that arise from unforseen problems or requirement changes may be requested for consideration at any time.

   b. Execution Process.

      (1) Maintenance Project Baseline List. The finalized Maintenance Project Baseline List is developed by the M&O Contractor and distributed to EAMD at the beginning of the fiscal year. The list is tracked by the M&O Contractor until closed (see Attachment 3).

(2) Maintenance Customer Service Call Procedures. Customer service calls include repair or emergency maintenance tasks that are not a part of the budget call.

(a) NTS Users and Organizations.

- Request. Request for repair or emergency/urgent work can be initiated by calling the M&O Contractor Work Control Center at (702) 295-4559, 24 hours a day, 7 days a week.

- Procedure. Once a service call is received at the M&O Contractor Work Control Center, it will be entered into the Computerized Maintenance Management System (CMMS), and the customer will be provided a tracking number. If a problem occurs or service is unsatisfactory, customers are encouraged to contact one of the appropriate DOE/NV EAMD maintenance coordinators (see Attachment 1) during normal work hours. Information required to help DOE/NV EAMD resolve any issues will be documented through the DOE/NV Maintenance Customer Concern Form (Attachment 2).

(b) NLV and RSL Users.

- Request. Request for repair or emergency/urgent work can be initiated by calling the M&O Contractor Work Control Center (702) 295-6843, 24 hours a day, 7 days a week.

- Procedure. Once a service call is received into the M&O Contractor Work Control Center, it will be entered into the CMMS and the customer will be provided a tracking number. If a problem occurs or service is unsatisfactory, customers are encouraged to contact one of the appropriate DOE/NV EAMD maintenance coordinators (see Attachment 1) during normal work hours. Information required to help DOE/NV EAMD resolve any issues would be documented through the EAMD Maintenance Customer Concern Form (Attachment 2).

(c) Other Off-Site Facilities.

- Washington Aerial Measurements Operations. The WAMO facility is located on Andrews Air Force Base in Camp Springs, Maryland. Point of Contact (POC): Frank Lewis, (301) 817-3341.

- Los Alamos Operations. The LAO is a leased facility located in Los Alamos, New Mexico. POC: Robert Parks, (505) 667-1717.

- Livermore Operations. The LO is a leased facility located in San Ramon, California. POC: Judy Sullenberger, (925) 960-2252.

- Special Technical Laboratory. The STL is a leased facility located in Goleta Valley, California. POC: John Pittman, (805) 681-2462.

c. Self-Assessment.

(1) Internal Federal Personnel Assessments.

DOE O 430.1, A LIFE CYCLE ASSET MANAGEMENT (LCAM), is a performance-based Order directed from DOE Headquarters (DOE/HQ) personnel to the field office personnel providing minimum performance requirements for the stewardship of DOE's physical assets. Each fiscal year DOE/NV develops an LCAM self-assessment report for the maintenance program documenting DOE/NV's performance against the agreed to performance objectives, criteria, and measures. The self-assessment includes six LCAM functional areas, including an overview of recent DOE/NV processes and plans that integrate site-wide approaches consistent with the intent of LCAM. The functional areas are comprehensive planning, cost estimating, facility management, project management, real estate, and utilities. Attachment 5 includes an DOE/NV LCAM Self-Assessment Form.

Integrated Safety Management (ISM) objectives, principles, and functions are incorporated into the overall maintenance program. When conducting self-assessments, hazard and safety analyses are performed and all the ISM principles are evaluated.

(2) External Contractor Assessments Conducted by Federal Personnel.

Self-assessments are prepared for the maintenance program in accordance with DOE P 450.5, LINE ENVIRONMENT, SAFETY AND HEALTH OVERSIGHT, dated 6-2-97. DOE/NV oversight responsibilities, include external and internal reviews (e.g., self-assessments), which are evaluated and considered for maintenance program enhancement.

Self-assessments will focus and evaluate the following maintenance areas:

- Organization and Administration.
- Maintenance Facilities, Equipment, and Material.
- Planning, Scheduling, and Work Control Process.
- Corrective, Preventive, and Predictive Maintenance.
- Deferred Maintenance.
- Procedures and Documentation.
- Training and Qualification of Maintenance Personnel.

Maintenance program assessments include the following items:

(a) Periodic inspections of facilities, real property, installed equipment, and infrastructure to determine condition, operational status, aging, technological viability for mission execution, and housekeeping.

(b) Daily observations of conditions at maintenance job sites.

(c) Review of equipment deficiencies reported by others.

(d) Review of work identified in the maintenance work control system.

The significance of the self-assessment will be determined using a graded approach, with emphasis on ISM; programmatic and/or mission risks concerns; and asset values.

DOE/NV Surveillance Report Form (Attachment 4) will be used to document self-assessments. The author of the surveillance report will write the corrective actions and submit it to the M&O Contractor. The final report will be distributed to the designated DOE/NV POC for tracking corrective actions, incorporating lessons learned, and trending analysis.

5. RESPONSIBILITIES.

a. DOE/NV Manager.

(1) Maintains overall responsibility and authority for proper use and accountability of maintenance indirect funds and the establishment of procedures for planning and administration of maintenance repair and routine work.

(2) Resolves any conflicts arising from deliberations with the M&O Contractor regarding their maintenance planning and administrative processes.

(3) Delegates authority to administer and manage the maintenance-funded program and projects to the Assistant Manager for Technical Services.

b. Assistant Manager for Business and Financial Services.

(1) Serves as the DOE/NV Principal Staff Manager with overall responsibility and authority for proper use and accountability of contract funds.

(2) Oversees contract financial management and ensures contract financial systems and cost allocation processes meet federal and the DOE requirements.

c. Assistant Manager Technical Services.

(1) Serves as DOE/NV Principal Staff Manager responsible for proper use and accountability of maintenance funding.

(2) Supports and monitors the activities of subordinate staff to ensure uniform application of DOE/NV maintenance procedures.

d. Director, EAMD.

(1) Serves as the focal point for the maintenance planning, management, and administration.

(2) Reviews recommendations provided by subordinate staff.

(3) Designates a maintenance program manager to serve as the facilitator for the day-to-day planning activities.

(4) Reviews requests for deviations from this procedure and implements preparation of revisions to this procedure.

e. Maintenance Program Manager. Represents DOE/NV in overseeing the maintenance activities to ensure the M&O Contractor performs cost effective, efficient, and safe support operations.

(1) Coordinates with DOE/HQ on all maintenance program policies and procedures.

(2) Develops guidance and performance measures for the DOE/NV Contractors.

(3) Coordinates technical support activities with the DOE/NV Contractors to achieve a thorough understanding and uniform application of the policies and procedures.

(4) Makes recommendations on what constitutes sound, cost-effective planning practices, and provides these recommendations to the Director, EAMD.

(5) Conducts walk-throughs and develops written evaluations and assessments for all facilities and infrastructure.

(6) Disseminates meeting announcements and maintains meeting minutes.

f. Maintenance Coordinators.

(1) Address customer concerns and complaints.

(2) Conduct day-to-day interactions with the M&O Contractor addressing maintenance-related issues and concerns.

(3) Conduct walk-throughs and develop written evaluations and assessments for all facilities and infrastructure.

6. REFERENCES.

a. DOE O 430.1A, LIFE-CYCLE ASSET MANAGEMENT, dated 10-14-98.

b. DOE O 414.1, QUALITY MANAGEMENT, dated 11-24-98.

c. NTS-SOP 4001, NEVADA TEST SITE INFRASTRUCTURE MANAGEMENT, dated 8-17-95.

d. Good Practice Guide, Office of Field Management, 001 (GPG-FM-031), Project Maintenance Overview, dated 3-96.

7. DEFINITIONS.

a. BMAR or Maintenance Backlog. The amount of maintenance and repair work not accomplished at the end of the fiscal year that is needed or planned to sustain the assigned mission.

b. Corrective Maintenance. The restoration of failed or malfunctioning equipment, systems, or facilities to this intended function or design condition. Repair does not result in a significant extension of the expected useful life.

c. Deferred Maintenance. Maintenance that was not performed when it should have been, or was scheduled to be, and which, therefore, is put off or delayed for a future period.

d. Emergency Work. Work requiring immediate action to prevent serious personal injury, environmental harm, security breach, or property loss.

e. Infrastructure. All real property, installed equipment, and personal property that is not solely supporting a single program mission.

f. Maintenance. Day-to-day work that is required to sustain property in a condition suitable for it to be used for its designated purpose and includes preventive, predictive, and corrective (repair) maintenance.

g. Predictive Maintenance. Based upon diagnostic data, it embraces the actions necessary to monitor, find trends, and analyze the parameters, performance characteristics, properties, and signatures associated with equipment, systems, or facilities that are indicative of decreasing performance or impending failure.

h. Preventive Maintenance. Systematically planned and scheduled actions performed on structures and equipment to meet or exceed design service life.

i. Real Property. Real property includes land, improvements on the land, or both, including interests therein. All equipment or fixtures (such as plumbing, electrical, heating, built-in cabinets, and elevators) that are installed in a building, in a more or less permanent manner, or that are essential to its primary purpose, are usually held to be part of real property.

j. Routine Work. Routine work activities performed to implement improvements or correct deficiencies not directly related to mission of a program or facility. Routine work requirements will be performed as time permits. Routine work should only include work that can be deferred for up to one year without degrading the capacity, reliability, or operability of the equipment or facilities.

k. Trending. An analysis of parts, systems, component surveillances, performance, and operating histories to determine such things as failure causes, operational effectiveness, cost-effectiveness, and other attributes.

l. Urgent Work. Work required to abate conditions causing a serious impact on personnel safety or the environment, correct event-related problems critical to sustain the current mission of a facility, or correct deficiencies in the security alarm systems of special nuclear materials. Action should normally be taken within 3 workdays.

m. Utility. A system, or any of its components, that generates and/or distributes (via pipelines, wires, buses, or electromagnetic waves) a commodity of service to itself and/or to other facilities.

n. Assets. See Physical Assets.

o. Baseline. A quantitative expression of projected costs, schedule, and technical requirements; the established plan against which the status of resources and the progress of a project can be measured.

p. Facilities. Land, buildings, and other structures, their functional systems and equipment, and other fixed systems and equipment installed therein, including site development features outside the plant such as landscaping, roads, walks, and parking areas; outside lighting and communication systems; central utility plants; utilities supply and distribution systems; and other physical plant features.

q. Graded Approach. The depth of detail required and the magnitude of resources expended for a particular management element to be tailored to be commensurate with the element's relative importance to safety, environmental compliance, safeguards and security, programmatic importance, magnitude of the hazard, financial impact, and/or other facility-specific requirements.

r. Life Cycle. The life of an asset from planning through acquisition, maintenance, operation, and disposition.

s. Physical Assets. All DOE-owned or DOE-used and -controlled land, land improvements, structures, utilities, motor vehicles, equipment, and components are included.

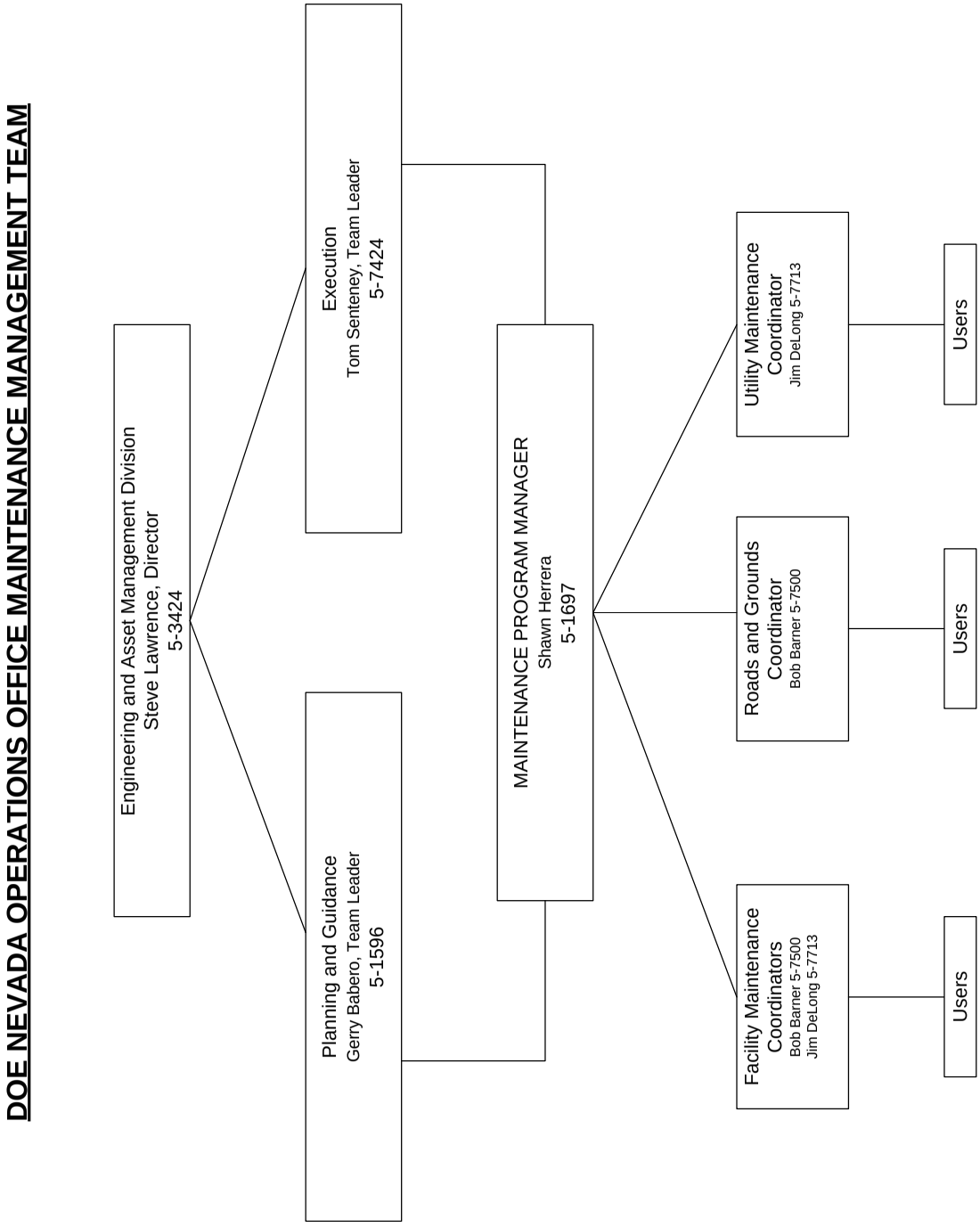
t. Site. A geographic entity comprising leased or owned land, buildings, and other structures required to perform program activities.

u. Surveillance and Maintenance. These activities are conducted throughout the facility life cycle phase including when a facility is not operating and is not expected to operate again and continues until phased out during

decommissions. Activities include providing in a cost effective manner periodic inspections and maintenance of structures, systems, and equipment necessary for the satisfactory containment of contamination and protection of workers, the public, and the environment.

G. W. Johnson
Manager

DOE NEVADA OPERATIONS OFFICE MAINTENANCE MANAGEMENT TEAM



DOE NEVADA OPERATIONS OFFICE (DOE/NV) OFFICE MAINTENANCE CUSTOMER CONCERN FORM

Requester: _____ Organization: _____

Time of Request: _____ Date of Request: _____

Engineering and Asset Management Division (EAMD) Personnel Notified: _____

Type of Maintenance: ☐ Facility Maintenance ☐ Roads and Grounds
☐ Utility Maintenance

Description of Problem:

_____
_____
_____
_____
_____
_____
_____
_____

Bechtel Nevada (BN) Personnel Notified: _____ Phone Number:_____

BN Estimated Completion Date:_____

Status:

_____
_____
_____
_____

Solution:

_____
_____
_____
_____

Date Closed:_____

DOE/NV MAINTENANCE CUSTOMER CONCERN FORM (Continued)

The following are instructions for the EAMD maintenance coordinator completing this form:

Requestor	Enter the user's first and last name.
Organization	Enter the user's organization (i.e., LANL, SNL).
Time of Request	Enter the time the user requested service.
Date of Request	Enter the date the user requested service.
EAMD Personnel Notified	Enter your first and last name.
Type of Maintenance	Put a check mark next to the type of maintenance service needed.
Description of Problem	Discuss the issue in detail based on the customer's description.
BN Personnel Notified	Enter the first and last name of the BN personnel you notified.
Phone Number	Enter the phone number of the BN personnel you notified.
BN Estimated Completion Date	Enter the estimated BN completion date**.**
Status	Discuss BN's next steps to resolve the issue.
Solution	Discuss BN's resolution in detail.
Date Closed	Enter the date when the work has been completed. If a BN work order is generated, check the date closed in the Computerized Maintenance Management System.

EXAMPLE

MAINTENANCE AND REPAIR PROJECTS (M AND R)

AS OF OCT 9,1998

MAINTENANCE PROJECT BASELINE LIST

#	PROJECT DESCRIPTION	LOC	WK CL	RTG PTS	RNK FY	FY PER	FY ORG	EST BAS	EST $K	POC	JUSTIFICATION	IMPACT
1	Perform inspection of the BREN tower at NTS, develop cost est to repair and certify, and develop options. WO8039461	NTS	SE	54	1	99	98	VEND ENG	30.0	Schopp.	The 35 year old tower is out of compliance with current codes, is overdue for inspection, and is a safety risk. It either needs to be re-certified and refurbished if a mission is identified, or dismantled and removed.	Delay in re-certifying or removal of the tower could result in a potentially serious accident. The tower is also subject to continuing maintenance costs. (Further actions to be planned after inspection completion).
2	A/C replacement for Bldg. 726, Area 23. CN: R20100MA, CN:R3107653 WO8007653	NTS	RE	53	2	99	98	BN EST	176.0	Russel	Repair cost for existing unit exceeds value of unit.	Equipment failure would result in shutdown of facility operations.
3	Replace ungrounded electrical utility system of bldg. 23-100. WO8031084	NTS	MO	51	3	99	95	RSM	9.6	Schopp.	Existing 115 VAC Electrical system is an outdated installation that only uses two wires, the positive and neutral which are run throughout the building to the electrical outlets. This antiquated system does not meet today's National Electrical Codes.	Failure to replace the old system with a three wire system could result in grounding problems, unsafe conditions. risk of damage to the building and equipment.
4	Install Safety Railings on various NTS facilities. CN: R3107651 WO8007651	NTS	MO	51	4	99	98	RSM	8.2	Schopp.	Permanent fall protection/work platforms needed. Maintenance now uses temp tie-offs or other work arounds that still have safety risks and require up to 50% more mhrs to do the job. Funding has been deferred several times during normal budget process.	Lack of fall protection/work platforms continues to be a safety risk to maintenance employees, damages roof structure, promotes leaks, and increases maintenance labor costs significantly. ***Matls on hand.***

2/3/99 9:16 AM

U.S. DEPARTMENT OF ENERGY
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SURVEILLANCE REPORT

1. REPORT NUMBER:	2. INITIATOR'S SIGNATURE:	3. DATE OF REPORT:
4. DATE OF SURVEILLANCE:	5. SUBJECT:	
6. ORGANIZATION(S):	7. LOCATION:	
8. PERSONNEL CONTACTED:		
9. ACTIVITIES OBSERVED (INCLUDE SOURCES OF REQUIREMENTS):		

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SURVEILLANCE REPORT--(CONTINUATION SHEET)

10. FOLLOW-UP ACTION REQUIRED:

11. ISM REVIEW:

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SURVEILLANCE REPORT--(CONTINUATION SHEET)

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DOE NEVADA OPERATIONS OFFICE (DOE/NV) OFFICE LIFE CYCLE ASSET MANAGEMENT (LCAM) SELF-ASSESSMENT FORM
Functional Area:
Facilities Management Maintenance:
Summary Statement:

Area(s) of Excellence/Opportunities for Excellence:

DOE/NV LCAM SELF-ASSESSMENT FORM (Continued)
Area(s) of Improvement or Concern/Action Plan to Correct:
Proposed Fiscal Year 1999:

DOE/NV LCAM SELF-ASSESSMENT FORM
(Continued)

Performance Assessment	A	B	C	D
1. Do you have documented policies/procedures/guides that communicate your expectations for functional areas? Justification:				
2. Do you use lessons learned and other continuous improvements to revise your role and responsibilities as needed? Justification:				
3. Have you identified and documented the levels of experience, education, and training necessary for your position? Justification:				
4. Do you ensure that risks within your functional area are appropriately analyzed and prioritized, that is within your control? Justification:				
5. Do you have the appropriate measures to help you assess your task within the functional area? Justification:				

DOE/NV LCAM SELF-ASSESSMENT FORM
(Continued)

Performance Assessment (continued)	A	B	C	D
6. Do you ensure that the appropriate requirements, Federal Regulations, DOE Orders, etc., and standards are identified for compliance for the work that is within your control? Justification:				
7. Do you develop and maintain performance measures and periodically review your progress towards meeting those objectives? Justification:				
8. Your mission, responsibilities, and authorities related to your functional area are clearly defined, documented, communicated, and understood? Justification:				
9. Do you ensure that funding allocations associated with the work you oversee are effectively controlled? Justification:				
10. Do you have any means of acquiring professional expertise to assist your work? Justification:				